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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD				PROJECT 3831	
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3831 Joint Strike Fighter	0	761,893	1,743,668	1,941,951	2,485,774	1,984,386	1,686,592	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	TBD
<p>THIS PROGRAM ELEMENT (PE) CONTINUES DEVELOPMENT EFFORTS BUDGETED IN PE 0603800F PRIOR TO FISCAL YEAR 2002.</p> <p>(U) <u>A. Mission Description</u> The Joint Strike Fighter (JSF) program will develop and field a family of aircraft that meets the needs of the USN, USAF, and USMC and allies, with optimum commonality among the variants to minimize life cycle costs. This is a joint program with no executive service. The Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom (UK) is a partner in this phase, and agreements with several other countries are in negotiation.</p> <p>PROGRAM SDD FUNDING BREAKOUT REFLECTS NAVY, AIR FORCE AND UK FUNDING ONLY. EXCLUDES TBD ANTICIPATED OTHER INTERNATIONAL FUNDING.</p> <p>QUANTITY OF RDT&E ARTICLES IS 14.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 FY 2001 appropriated funding was reprogrammed to PE 0603800F. (U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$1,476,500 Commence execution of System Development and Demonstration (SSD) for Air System with Lockheed Martin and F135 Propulsion System with Pratt & Whitney. (U) \$44,900 Continue General Electric's development of a second, interchangeable JSF engine (GE F136) for competition in production (previously begun in associated program elements 0603800N and 0603800F). (U) \$98,450 Commence SDD mission support including systems engineering activities, modeling, simulation and analysis efforts and program office functions. (U) \$1,619,850 Total</p>									
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(U) **A. Mission Description Continued**

(U) FY 2003 (\$ in Thousands)

(U) \$3,192,000	Continue execution of SDD for Air System with Lockheed Martin and F135 Propulsion System with Pratt & Whitney.
(U) \$150,000	Continue General Electric's development of a second, interchangeable JSF engine (GE F136) for competition in production.
(U) \$290,168	Continue SDD mission support including systems engineering activities, modeling, simulation and analysis efforts and program office functions.
(U) \$3,632,168	Total

(U) **B. Budget Activity Justification**

This program is funded under SYSTEM DEVELOPMENT & DEMONSTRATION (SDD) because it encompasses new systems development and demonstration end items prior to production approval decision.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U) Previous President's Budget	0	769,511	1,747,738	TBD
(U) Appropriated Value	0	769,511		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	0	-7,618		
b. Small Business Innovative Research				
c. Omnibus or Other Above Threshold Reprogram	0			
d. Below Threshold Reprogram				
e. Rescissions				
(U) Adjustments to Budget Years Since FY 2002 PBR			-4,070	
(U) Current Budget Submit/FY 2003 PBR	0	761,893	1,743,668	TBD

(U) **Significant Program Changes:**

Funding: The FY 2002 \$7,618 thousand decrease reflects an undistributed congressional reduction. The FY 2003 \$4,070 thousand decrease reflects economic assumptions (\$3,872 thousand) and Assistance and Advisory Services (A&AS) support (\$198 thousand).

Schedule: None.

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(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) RDT&E 0603800F	341,167	0	0	0	0	0	0	0	1,907,352
(U) RDT&E 0603800N	341,164	0	0	0	0	0	0	0	1,950,617
(U) RDT&E 0603800E	0	0	0	0	0	0	0	0	118,006
(U) UNITED KINGDOM	800								201,221
(U) MULTI-LATERAL	1,700								32,100
(U) CANADA	0								10,600
(U) ITALY	0								10,000
(U) RDT&E 0604800N		762,957	1,727,500	1,931,753	2,489,103	1,987,246	1,689,760	Continuing	TBD
(U) United Kingdom (SDD)		95,000	161,000	200,000	356,000	384,000	355,000	Continuing	TBD
(U) Other APPN									
(U) USAF 0207142F					74,014	1,042,863	1,815,676	Continuing	TBD
(U) APN-1 0204146N					50,079	762,878	1,325,330	Continuing	TBD

Note 1: RDT&E 0604800N continues development efforts budgeted prior to FY 2002. FY 2005 funding is for advanced procurement requirements.

(U) **E. Acquisition Strategy**

Activities in the prior phase of JSF centered around three distinct objectives to provide a sound foundation for the start of System Development & Demonstration (SDD) in Fall 2001:

- (1) facilitated the Services' development of fully validated, affordable operational requirements;
- (2) lowered risk by investing in and demonstrating key leveraging technologies that lowered the cost of development, production and ownership; and
- (3) demonstrated operational concepts.

Early warfighter and technologist interaction was an essential aspect of the requirements definition process, and achieved JSF affordability goals. To an unprecedented degree, the JSF Program used cost-performance trades early, as an integral part of the weapon system development process. The Services defined requirements through an iterative process, balancing weapon system capability against life cycle cost at every stage. Each iteration of the requirements was provided to industry. They evolved their designs and provided cost data back to the warfighters. The warfighters evaluated trades and made decisions for the next iteration. This iterative process produced iterations of the Services' Joint Interim Requirements Documents in 1995, 1997, 1998 and culminated in the approved joint Operational Requirements

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(U) **E. Acquisition Strategy Continued**

Document (ORD) in FY2000.

A sizable technology maturation effort was conducted to reduce risk and life cycle cost (LCC) through technology maturation and demonstrations. The primary emphasis was on technologies identified as high payoff contributors to affordability, supportability, survivability and lethality. Numerous demonstrations were accomplished to validate performance and life cycle cost impact to component, subsystem and the total system.

In November 1996, contracts were awarded to Boeing and Lockheed Martin for Concept Demonstration Programs. These competing contractors built and flew concept demonstrator aircraft, conducted concept unique ground demonstrations, and refined their respective weapon system concepts. Specifically, Boeing and Lockheed Martin demonstrated commonality and modularity, Short Take Off/ Vertical Land (STOVL) hover and transition, and low speed handling qualities of their respective weapon system concepts. Pratt and Whitney provided propulsion hardware and engineering support. General Electric continued development of a second, interchangeable, engine for competition in production.

Following evaluation of proposals and a favorable Milestone B decision, the JSF Program entered SDD on 26 October 2001 with SDD contract awards to Lockheed Martin and Pratt & Whitney. The SDD plan reflects a block approach, based on open systems architecture, for accomplishing aircraft and weapons integration. General Electric continues propulsion development efforts.

Procurement of the USAF and USMC JSF variants is planned to begin in FY 2006, with advance procurement for Lot 1 in FY 2005. Procurement of the USN JSF variant is planned to begin in FY 2008, with advance procurement for Lot 3 in FY 2007.

(U) **F. Schedule Profile**

	<u>FY 2001</u>					<u>FY 2002</u>					<u>FY 2003</u>			
	1	2	3	4	1	2	3	4	1	2	3	4		
(U) Milestone B and Award of SDD Contract: Oct. 2001 *					*									
(U) Air System Requirements Review (ASRR)						X								
(U) Integrated Baseline Reviews (IBRs) at GE, P&W and Lockheed Martin						X	X							
(U) Preliminary Design Review (PDR)												X		
(U) Critical Design Reviews (three variants) 2004-2005														
(U) CTOL First Flight 1st Qtr FY-2006														
(U) STOVL First Flight 3rd Qtr FY-2006														
(U) CV First Flight 2nd Qtr FY-2007														

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2002		
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(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
					<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U) SDD Air System (Lockheed Martin)					0		684,500		2,432,000	
(U) P&W F135 Engine							792,000		760,000	
(U) GE F136 Engine							44,900		150,000	
(U) Mission Support							80,077		263,669	
(U) Advisory & Assistance Svcs							18,373		26,499	
(U) Total					0		1,619,850		3,632,168	
Note 1:										
- Excludes TBD anticipated other international funding.										
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
<u>Contractor or</u>		<u>Contract</u>								
<u>Government</u>		<u>Method/Type</u>								
<u>Performing</u>		<u>Award or</u>		<u>Performing</u>		<u>Project</u>				
<u>Activity</u>		<u>Obligation</u>		<u>Activity</u>		<u>Office</u>		<u>Total Prior</u>		<u>Budget</u>
<u>Vehicle</u>		<u>Date</u>		<u>EAC</u>		<u>EAC</u>		<u>to FY 2001</u>		<u>Budget</u>
								<u>FY 2001</u>		<u>FY 2002</u>
								<u>FY 2003</u>		<u>Budget to</u>
								<u>Complete</u>		<u>Total</u>
<u>Product Development Organizations</u>										
Lockheed Martin		C/CPAF		10/02		18,981,928		18,981,928		684,500
Pratt & Whitney		SS/CPAF		10/02		4,827,786		4,827,786		792,000
General Electric		SS/CPAF		11/02		411,000		411,000		44,900
Various		Various				Continuing		Continuing		80,077
Sverdrup/Anteon		SS/CPFF		03/02		Continuing		Continuing		3,150
Stanley		SS/CPFF		03/02		Continuing		Continuing		3,806
Aegis		SS/CPFF		03/02		Continuing		Continuing		1,960
LSI/Veridian		SS/CPFF		03/02		Continuing		Continuing		4,457
Various		Various		Field Sites		Continuing		Continuing		5,000
<u>Support and Management Organizations</u>										
<u>Test and Evaluation Organizations</u>										
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<p>(U) <u>Performing Organizations Continued:</u> Details of fiscal year award fee profiles for Lockheed Martin, Pratt & Whitney and General Electric are being established or refined. The GE contract target value (EAC) reflects the negotiated value of the current Phase IIIb.</p> <p>(U) <u>Government Furnished Property:</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Item</u></th> <th style="text-align: left;"><u>Contract</u> <u>Method/Type</u></th> <th style="text-align: left;"><u>Award or</u> <u>or Funding</u></th> <th style="text-align: left;"><u>Obligation</u></th> <th style="text-align: left;"><u>Delivery</u></th> <th style="text-align: right;"><u>Total Prior</u></th> <th style="text-align: right;"><u>Budget</u></th> <th style="text-align: right;"><u>Budget</u></th> <th style="text-align: right;"><u>Budget</u></th> <th style="text-align: right;"><u>Budget to</u></th> <th style="text-align: right;"><u>Total</u></th> </tr> <tr> <th style="text-align: left;"><u>Description</u></th> <th style="text-align: left;"><u>Vehicle</u></th> <th style="text-align: left;"><u>Date</u></th> <th style="text-align: left;"><u>Date</u></th> <th></th> <th style="text-align: right;"><u>to FY 2001</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>FY 2003</u></th> <th style="text-align: right;"><u>Complete</u></th> <th style="text-align: right;"><u>Program</u></th> </tr> </thead> <tbody> <tr> <td colspan="11"><u>Product Development Property</u></td> </tr> <tr> <td colspan="11"><u>Support and Management Property</u></td> </tr> <tr> <td colspan="11"><u>Test and Evaluation Property</u></td> </tr> <tr> <td colspan="5"></td> <td style="text-align: right;"><u>Total Prior</u></td> <td style="text-align: right;"><u>Budget</u></td> <td style="text-align: right;"><u>Budget</u></td> <td style="text-align: right;"><u>Budget</u></td> <td style="text-align: right;"><u>Budget to</u></td> <td style="text-align: right;"><u>Total</u></td> </tr> <tr> <td colspan="5"></td> <td style="text-align: right;"><u>to FY 2001</u></td> <td style="text-align: right;"><u>FY 2001</u></td> <td style="text-align: right;"><u>FY 2002</u></td> <td style="text-align: right;"><u>FY 2003</u></td> <td style="text-align: right;"><u>Complete</u></td> <td style="text-align: right;"><u>Program</u></td> </tr> <tr> <td colspan="5"><u>Subtotals</u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="5">Subtotal Product Development</td> <td></td> <td></td> <td style="text-align: right;">1,619,850</td> <td style="text-align: right;">3,632,168</td> <td style="text-align: center;">TBD</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td colspan="5">Subtotal Support and Management</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="5">Subtotal Test and Evaluation</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="5">Total Project</td> <td></td> <td></td> <td style="text-align: right;">1,619,850</td> <td style="text-align: right;">3,632,168</td> <td style="text-align: center;">TBD</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td colspan="11">Notes:</td> </tr> <tr> <td colspan="11">- Excludes TBD anticipated other international funding.</td> </tr> </tbody> </table>								<u>Item</u>	<u>Contract</u> <u>Method/Type</u>	<u>Award or</u> <u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>	<u>Product Development Property</u>											<u>Support and Management Property</u>											<u>Test and Evaluation Property</u>																<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>						<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>	<u>Subtotals</u>											Subtotal Product Development							1,619,850	3,632,168	TBD	TBD	Subtotal Support and Management											Subtotal Test and Evaluation											Total Project							1,619,850	3,632,168	TBD	TBD	Notes:											- Excludes TBD anticipated other international funding.										
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